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NEW PLANTS FROM MISSOURI.

BY K. K. MACKENZIE AND B. F. BUSH.

SAGITTARIA BREVIROSTRA Mack. & Bush, sp. nova.

A glabrous monoecious perennial growing in swamps. Leaf-blades with petioles about 3 dm. long, deep green and shining, strongly sagittate, resembling narrow-leaved forms of *S. latifolia* Willd.; basal lobes 2 to 3 dm. long, long acuminate, pointing downwards, the middle lobe 2 to 2.5 dm. long, also acuminate, pointing upwards; scape tall, stout and robust, 4- to 6-angled, the larger often 25 mm. thick, noticeably taller and stouter than that of *S. latifolia*, with which it is associated, often 8 dm. tall, and exceeding the leaves; bracts separate or very slightly united at base, lanceolate, tapering to a long acumination, especially the lower ones, the acumination of which is sometimes 3 to 4 cm. long, exceeding the pedicels in length, reflexed in age; whorls of the inflorescence numerous, usually branching below, the lower ones bearing pistillate, the upper ones staminate, flowers; pedicels straight, the fertile ones usually 2 cm. or less long, those bearing the staminate flowers a little longer; flowers barely 25 mm. across, with spreading white petals; sepals about 10 mm. long, ovate, obtuse; filaments glabrous; mature fruiting heads depressed-globose, 2 to 3 cm. in diameter; achenes about 2.5 mm. long, obovate-cuneate to nearly square, winged on one margin only and ridged on the side, the wing extending above the body of the achene; beak erect, lateral, minute, .5 mm. or less long.—In shallow sloughs along the Missouri River bottoms, western Missouri. Summer and autumn.

Readily distinguished from all forms of *S. latifolia* by the minute erect beak of the achene, *S. latifolia* having a

horizontal or oblique much longer beak. From *S. arifolia* Nutt., the entirely different leaves and extremely long pointed bracts usually differentiate it, and from *S. cuneata* Sheldon, it is distinguished not only by the last named character, but by the fact that *S. cuneata* is an aquatic provided with phyllodia, which our plant does not possess. In addition to the above characters, the achene of our plant is winged on one margin only, and the beak is at the edge of the top of the achene on the unmarginated side, while *S. arifolia* has achenes strongly margined on both sides, and the beak in the center of the top of the achene. *S. longiloba* Engelm. differs in its much longer basal leaf lobes, its smaller bracts, and different-shaped achenes. While, as above stated, *S. arifolia* usually differs from our plant very strongly in size and aspect, specimens collected by Mr. Cratty in Northern Iowa approach it in these particulars, but as far as we have seen, the achene characters given above are very constant.

Specimens examined. — The only specimens seen are those of the type, collected at Courtney, Jackson County, by *B. F. Bush* 2175, August 14, 1904, and October 10, 1903.

HEUCHERA PUBERULA Mack. & Bush, sp. nova.

Foliage merely puberulent. Rootstocks slender, short; stems delicate and slender, 2 to 3 dm. tall, or less, pubescent merely, leafless, but bearing a few slender, minute, entire bractlets; leaf-blades reniform-cordate, from 4 to 12 cm. wide, and from 2.5 to 7.5 cm. long, puberulent on both sides and short-pubescent on the veins beneath, thin, green above, usually strongly reddened beneath, the basal sinus rather shallow, more deeply lobed and the teeth sharper than in *Heuchera parviflora* Bartl.; petioles 2 dm. or less long, puberulent merely; panicle 3 to 20 cm. long, rather one-sided, the axis and main branches glabrate or puberulent, the pedicels and especially the hypanthiums short-pubescent; hypanthium campanulate, fully 2 mm. long

during anthesis, the obtusish sepals about one-third the length of the tube, enlarging later; petals white, linear-spatulate, twice the length of the sepals; stamens long-exserted.—Rocky cliffs, southern Missouri. Summer and autumn.

Related to *Heuchera parviflora* Bartl., to which it has been constantly referred, but distinguished by the italicized portions of the above description. In *H. parviflora* the petioles are villous to pubescent, and the lobing of the leaves is very shallow.

Specimens examined.—MISSOURI: Monteer, Shannon County, *Bush* 1119, October 23, 1901, type, 195, July 27, 1899; Shannon County, *Bush*, September 12, 1888; October 21, 1893; Carter County, *Trelease* 289, September 10, 1897.

CONVOLVULUS FRATERNIFLORUS Mack. & Bush, sp. nova.

Convolvulus sepium fraterniflorus Mack. & Bush, Man. Fl. Jackson County, Mo. 153. (1902).

Sparingly short-pubescent or glabrate. Stems trailing or twining, much branched, the branches much interwoven and twisted, 1 to 2 m. long, glabrate or short-pubescent; leaf-blades hastate, rarely nearly sagittate, *short-pubescent on both surfaces*, especially on the upper surface, acute, deeply cordate at base, the basal lobes spreading, and either entire or in vigorous plants obliquely truncate and toothed, 3.5 to 9 cm. long, and from 2.5 to 9 cm. wide at base; petioles 2 to 5 cm. long; peduncles one or *more often two in the axil of each leaf*, strongly quadrangular, *the angles noticeably winged*, *shorter* or occasionally longer than the petioles; bracts of the calyx *large, strongly cordate*, acute or obtusish, pubescent without, 2 to 4 cm. long, *entirely overlapping and concealing the sepals at flowering time*; calyx much shorter than the bracts, glabrous; sepals obtusish, ovate or oblong-ovate, 10 to 15 mm. long; corolla

pure white, about 5 cm. long; mature capsules not seen.— Dry banks and prairies, western Missouri. Summer and autumn.

This plant is easily distinguished by the italicized portion of the description above, the large bracts being especially noteworthy.

Specimens examined.—MISSOURI: West Belton, Cass County, *Mackenzie* 100, August 4, 1902; Oak Grove, Jackson County, *Mackenzie* 75, July 30, 1902; Lee's Summit, *Mackenzie*, July 6, 1900; Martin City, *Mackenzie*, *Bush*, July 9, 1899, type.

DASYSTOMA CALYCOSA Mack. & Bush, sp. nova.

Perennial, perfectly glabrous. Stems 5 to 15 dm. tall, glaucous, diffusely much branched; lower leaves about 1 dm. long, the blades strongly veined, ovate-lanceolate or ovate-oblong in outline, the lower portion typically very deeply pinnatifid, often leaving the middle portion but 2 mm. wide, the 2 to 6 segments from oblong-linear to triangular, entire or with 1 to 3 teeth, the terminal portion of the blade lanceolate or ovate-lanceolate, irregularly cleft and jagged, the margins of the blade ciliate, the upper surface scabrous-pubescent; petioles ciliate; inflorescence branching, the very slender elongated branches widely spreading; bracts narrowly linear-lanceolate, acuminate, entire, the blades 2 to 4 cm. long, tapering to petioles some 5 mm. long; pedicels stout, usually strongly curved, 3 to 8 mm. long; body of the calyx 6 to 8 mm. long, nerved strongly; sepals linear-awl-shaped, 7 to 10 mm. long when developed and exceeding the body of the calyx, one or more often abortive; corolla 3 to 4 cm. long, rather narrowly funnel-form for the genus; capsules broadly oval-ovate, pointed, 10 to 15 mm. long.— Rocky wooded hills in the Ozark region. Missouri and Arkansas. Summer and autumn.

This species may be readily distinguished from the

eastern *Dasystoma Virginica* (L.) Britton, which we have not seen from west of the Mississippi, by its much more divided leaf-blades which are scabrous-pubescent above, its very narrow corolla tube and especially by its long calyx teeth, the eastern plant having short triangular or short oblong calyx teeth, which are shorter than the body of the calyx.

Specimens examined. — MISSOURI: Monteer, Shannon County, *Bush* 219, July 31, 1899, type, 722, August 21, 1901; Bay Mills, Ripley County, *Mackenzie* 412, July 24, 1897; Hunter, *Trelease*; July 31, 1895; Pilot Knob, *Russell*, September, 1897; *Glatfelter*, August 20, 1895; Einstein Mine, Madison County, *Trelease* 529, August 18, 1897; Flat River, St. François County, *Trelease* 530, October 13, 1897; Iron County, *Trelease* 532, August 18, 1897. ARKANSAS: Little Mamelie, *Engelmann*, September, 1835; Little Rock, *Hasse*, September 20, 1885.

XANTHIUM INFLEXUM Mack. & Bush, sp. nova.

Xanthium speciosum M. & B., Man. Fl. Jackson County, Mo. 187. (1902), not of Kearney.

Glabrate, or the upper part from sparingly to strongly roughened with small white papillae. Stems 1 to 1.5 m. tall, upright, much branched; leaf-blades cordate or ovate-cordate, strongly irregularly crenate-dentate, 3-lobed, the middle lobe much the largest, in outline resembling the leaf of *Malva sylvestris* L., strongly acuminate, from nearly glabrous to roughened below, slightly roughened above; petioles 5 to 15 cm. long, rather slender, strongly roughened with small white papillae; burs densely clustered, 2.5 cm. or less long, glandular-pubescent or glandular short-pubescent all over the body and the lower part of the prickles and beaks, never hispid, the body oblong-elliptical, 2 cm. or less long, and less than half that in width, somewhat tapering at the base; prickles longer than the diameter of the body of the bur, numerous, rather

slender, strongly hooked, glandular-pubescent or glandular short-pubescent below, glabrate above, those near the top of the bur sometimes considerably longer and sometimes considerably shorter than those near the base; body of the bur never concealed by the prickles; beaks stout, about 10 mm. long, at maturity abruptly bent at the middle, inflexed and at length greatly overlapping, hooked at the apex. — Sandy bottoms along the Missouri River in western Missouri. Autumn.

In the sandy bottoms near Courtney, Missouri, *Xanthium glabratum* (DC.) Britton, *X. commune* Britton, and *X. Pennsylvanicum* Wallr., abound, the last two species probably freely intergrading. The species above proposed as new is less common than the others, but is the most distinct of all. The leaves are more acuminate and toothed than is common with the other species, while the bur with its long and irregular prickles and inflexed overlapping beaks forming a circle, presents a markedly peculiar aspect.

Specimens examined. — MISSOURI: Courtney, *Bush* 869, September 13, 1900, 1916, October 5, 1903, type, 1804, 1806, October 21, 1902.

SENECIO SEMICORDATUS Mack. & Bush, sp. nova.

Senecio aureus Mack. & Bush, Man. Fl. Jackson County, Missouri. 207, (1902), not of L.

Perennial, 5 dm. or less tall, growing in small clumps, usually soon very glabrous all over, with the exception of some pubescence along the margins of the lower portions of the radical leaves, rarely a slight pubescence remaining elsewhere; blades of radical leaves *ovate-oblong*, very obtuse or rounded at the apex, *shallowly cordate*, *semicordate* or *truncate at base but never deeply cordate*, veiny, glabrous, crenate-dentate, typically 5 to 7.5 cm. long, 3.5 to 4 cm. wide, the petioles 9 to 15 cm. long; stem-leaves oblong-lanceolate, more or less clasping, the lower about

7.5 cm. long, the upper shorter, irregularly cleft or lacinate; heads few to many, in a simple or compound corymb, the long-acuminate bracts 6 to 7 mm. long; heads 8 to 12 mm. high, 10 to 14 mm. broad (without the rays); rays conspicuous, 8 to 12, toothed at the apex, 5 to 6 mm. long; achenes glabrous. — Low prairies, Illinois, Iowa and Missouri to Kansas and Texas. Spring.

Senecio aureus L., with its cordate-ovate to reniform basal leaves which are very deeply cordate at base, is very readily distinguished from this species.

Much more closely related to *S. pseud aureus* Rydb., of the Rocky Mountain region, but consistently has much less sharply serrate and more oblong lower leaves, much less pinnatifid upper leaves, and usually smaller heads and shorter rays.

Specimens examined. — MISSOURI: Levasy, Jackson County, *Bush* 1678, May 18, 1902, type; Independence, *Mackenzie*, May 4, 1896; Adam's Station, Jackson County, *Mackenzie*, May 23, 1897; Sheffield, *Mackenzie*, June 4, 1899. ILLINOIS: West Chicago, *Umbach*, May 25, 1897. IOWA: Johnson County, *Fitzpatrick*, May, 1896. KANSAS: Bourbon County, *Hitchcock*, May 5, 1897. TEXAS: Austin, *Bray*, March 10, 1898; San Marcos, *Stanfield*, 1898.